What is claimed is:

1. A method for expanding an address for an Internet protocol in an Internet edge router, comprising the steps of:

5   a) defining public network connection information in an option class of an Internet protocol message;

b) constructing a security & authentication (hereinafter, referred to as "SA") module and an SA hierarchical protocol in a service terminal protocol in order to provide IP address information and a

10   user authentication from a server having information of the existing public network subscribers by using the public network connection information, and constructing a connection information processing part to process the public network connection information; and

c) receiving a message from a network interface and processing

15   it, in the connection information processing part.

2. The method as recited in claim 1, wherein the public network connection information is a transmitting side terminal address and a receiving side terminal address.

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3. The method as recited in claim 1 or 2, wherein said step c) includes:

c1) receiving the message from the network interface and storing it in an IP input queue;

25   c2) deciding by said connection information processing part whether or not a destination address of the received message is same as its own IP;

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c3) clarifying whether or not connection address information as the terminal address exists within a routing table if the destination address is not same as its own IP in the deciding result of said step c2), and storing option area user information if there exists the

5   connection address information, and outputting an IP if there does not exist the connection address information;

c4) confirming whether or not there exists the control information if the destination address is same as its own IP in the deciding result of said fifth step, and processing an Internet control

10 message protocol packet if there exists the control information, and storing packet address and connection information if it is a data packet, and then deciding a type of the packet; and

c5) processing a UDP packet if the type of the packet is a UDP in the deciding result of said seventh step, and processing a TCP

15 packet if the type of the packet is a TCP.

4. A record medium in an Internet edge router having a microprocessor, which is capable of being read through a computer having a record of a program, said medium characterized in that:

20 said program is provided to realize,

a first function of defining public network connection information in an option class of an Internet protocol message;

a second function of constructing an SA module and an SA hierarchical protocol in a service terminal protocol in order to

25 provide IP address information and a user authentication from a server having information of the existing public network subscribers by using the public network connection information, and constructing a

connection information processing part to process the public network

connection information; and

a third function of receiving a message from a network interface

and processing it, in the connection information processing part.

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